

NUREG/CR-0200
Revision 6
Volume 3, Section M8
ORNL/NUREG/CSD-2/V3/R6

Computational Physics and Engineering Division

STANDARD COMPOSITION LIBRARY

L. M. Petrie
P. B. Fox
K. Lucius

Date Published: September 1998

Prepared for the
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555
Under Interagency Agreement DOE 1886-C000-9B
NRC JCN No. B0009

Prepared by the
OAK RIDGE NATIONAL LABORATORY
managed by
LOCKHEED MARTIN ENERGY RESEARCH CORP.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-96OR22464

RFCONCRETE	Rocky Flats Concrete: 48.49 wt % oxygen, 23 wt % calcium, 15.5 wt % silicon, 5.52 wt % carbon, 2.17 wt % aluminum, 1.37 wt % potassium, 1.25 wt % magnesium, 1.01 wt % iron, 0.75 wt % hydrogen, 0.63 wt % sodium, 0.19 wt % sulfur, 0.1 wt % titanium, 0.02 wt % nitrogen, 2.231 g/cc
SS304	Stainless steel-304: 68.375 wt % iron, 19 wt % chromium, 9.5 wt % nickel, 2 wt % manganese, 1 wt % silicon, 0.08 wt % carbon, 0.045 wt % phosphorus, 7.94 g/cc
SS304S	Stainless steel-304: 68.375 wt % iron, 19 wt % chromium, 9.5 wt % nickel, 2 wt % manganese, 1 wt % silicon, 0.08 wt % carbon, 0.045 wt % phosphorus (standard nuclides were used instead of special weighted nuclides) 7.94 g/cc
SS316	Stainless steel-316: 65.375 wt % iron, 17 wt % chromium, 12 wt % nickel, 2.5 wt % molybdenum, 2 wt % manganese, 1 wt % silicon, 0.08 wt % carbon, 0.045 wt % phosphorus, 8.03 g/cc
SS316S	Stainless steel-316: 65.42 wt % iron, 17 wt % chromium, 12 wt % nickel, 2.5 wt % molybdenum, 2 wt % manganese, 1 wt % silicon, 0.08 wt % carbon, 0.045 wt % phosphorus (standard nuclides were used instead of special weighted nuclides) 8.03 g/cc
U(.27)METAL	Depleted uranium metal having a fixed isotope distribution: 0.27 wt % ²³⁵ U, 99.73 wt % ²³⁸ U 19.05 g/cc (to specify a different distribution, the user should use URANIUM instead of U(.27)METAL) 19.05 g/cc
ZIRC2	Zircaloy-2: 98.250 wt % zirconium, 1.45 wt % tin, 0.100 wt % chromium, 0.135 wt % iron, 0.055 wt % nickel, 0.01 wt % hafnium, 6.56 g/cc
ZIRC4	Zircaloy-4: 98.23 wt % zirconium, 1.45 wt % tin, 0.1 wt % chromium, 0.210 wt % iron, 0.01 wt % hafnium, 6.56 g/cc